

advantages which it appears to have over the Kahn and Wassermann reactions are suggested.

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INVESTIGATIONS IN THE SERODIAGNOSIS OF SYPHILIS

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The need for a rapid and accurate test for the serodiagnosis of syphilis has led to the following investigations. The S.S. test, as described by Seiler, has been used at this clinic for 1,326 cases, which have been cross-checked by other serological reactions performed by outside laboratories. In all cases in which differences were found, blood investigations were repeated. Many sera were duplicated under different numbers. The antigen used in the S.S. test is that described by Rappaport and Eichhorn. All the tests carried out at this clinic were made in rotation and no effort was made to select cases.

Comparative results of tests

The results have shown a marked difference between the Kahn reaction and the S.S. test, but the S.S. tests have agreed to within 1 per cent with the Wassermann reaction. The percentage difference between these tests is still under investigation, the S.S. being regular in its results, the Wassermann reaction showing some irregularity. The percentage difference between the Kahn and S.S. tests remained constant through the whole period of the investigation, at about the 5 per cent figure.

Orpwood Price has called attention in a letter in the *Journal* to the fact that of late the reliability of the Kahn reaction has shown many variations, which may be due to a loss of sensitivity of the antigen.

Twenty-two cases sent up to this clinic as latent or suspected cases of syphilis, because of a positive Kahn reaction only, were found on full investigation to be non-venereal. The Wassermann and S.S. results in all these cases were persistently negative. In 18 of these cases the Kahn reverted to a negative reaction in spite of

TABLE—COMPARISON OF TESTS FOR SYPHILIS

TEST	AGREEMENT		DISAGREEMENT				
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.
W. R.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.
Kahn	Pos.	Neg.	Neg.	Pos.	Neg.	Pos.	Pos.
S.S.	Pos.	Neg.	Pos.	Neg.	Neg.	Pos.	Neg.
Number of tests ...	182	1,072	10	48	7	2	5

the fact that no treatment was given. In the remaining 4 cases the Kahn test remained positive: of these cases, 3 exhibited a tuberculous pyrexia and one was possibly a case of acute rheumatism.

In cases of gonorrhoea in which a routine blood test for the serodiagnosis of syphilis was taken, 16 cases were returned as Kahn double plus, S.S. negative. Later, on fuller investigation, all these tests (controlled by the Wassermann reaction) were returned as negative.

Whenever a disagreement occurs between tests it has been found the S.S. test has been consistent in its results, whereas both the Kahn and Wassermann reactions

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have been erratic in their behaviour. This is particularly true in the third and fourth stages of the disease. The degree of agreement and disagreement is shown in the table above.

The fact that the Wassermann reaction is performed by outside pathologists necessitates a delay in reporting of never less than 7 days, and in the past it has often been 14 days. This long delay, it is true, is due to the abnormal times in which the work is being done. However, delay does occur at any time.

The rapidity and ease of Seiler's S.S. test have led to a quick diagnosis and thus, in infected individuals, to early treatment. All the S.S. tests carried out in these cases were subsequently confirmed by the arrival of the results of the Wassermann test.

The larger the number of tests that are used the greater is the probability of a larger number of complicating reports, thus adding to diagnostic difficulties. The need therefore of a reliable test, which can be used as a basis for the serodiagnosis of syphilis and is definite in its report, should tend to simplify the problems of the physician in the multiplicity of difficulties presented to him.

A persistently positive S.S. test in the presence of conflicting Kahn and Wassermann reactions seems to be evidence of the presence of syphilis; it is suggested that probably the serum contains such small quantities of reagin as to be detected only by the most sensitive tests. Conversely, it is suggested that an equally persistently negative S.S. test is strong evidence in favour of the absence of syphilis, although other serological findings may have been returned as positive.

Case histories

The following 4 clinical cases are given as examples of the use of the S.S. test.

Case No. 1.—A male, aged 17 years, stated that he had had a slight shallow "sore" on the penis 6 months previously, which lasted 3 days and then cleared. No enlarged glands; no other symptoms. Denied any sexual risk. Kahn reaction was strongly positive, S.S. test negative. Patient's serum was sent for further investigation, and he was kept under close observation. The Kahn reaction was repeated in all 6 times from 10.12.1943 to 21.2.1944. Each Kahn test was returned as persistently positive. Each complementary S.S. test was returned as persistently negative. The Wassermann reaction was tested only 3 times, and all 3 tests were returned as negative. Patient was discharged as a non-venereal case.

Case No. 2.—Male aged 30 years, married, admitted to hospital with symptoms suggestive of acute rheumatism. Clinically nothing suggesting syphilis was detected. The Kahn test was strongly positive but the S.S. test was negative. Repeated tests over a period of 10 weeks (and a subsequent follow-up) showed a persistently positive Kahn and an equally persistently negative S.S. result. Three Wassermann reactions were done and all were negative. (The sera of the wife and child both gave negative results.) Patient had a continuous temperature of 99°F. with profuse sweating. He became very anxious but was returned to work. Six weeks later he was perfectly well, and a follow-up test was made. The Kahn test remained strongly positive, whereas the S.S. test and the Wassermann reaction were both negative.

Case No. 3.—A male aged 35 years, married, was referred to the clinic by an outside doctor because the patient's wife had a "unilateral Argyll-Robertson pupil". The patient had a bilateral artificial pneumothorax. Because of the peculiarity of the eye condition of his wife, the doctor made Kahn and Wassermann tests of the patient's blood. The Kahn test was strongly positive and the Wassermann reaction doubtful. No history of syphilis could be obtained. Full serological investigations were repeated at the clinic over a period of 10-12 weeks. The Kahn was persistently positive and the S.S. test invariably negative. Three Wassermann reactions were taken and all were negative. The wife's blood and cerebrospinal fluid were negative. Her eyes reacted to light and accommodation and were central, not fixed, but the left pupil was slightly larger than the right.

Case No. 4.—A female, aged 50 years, married, was sent up by her own doctor because of a positive Kahn test. She had been under his attention for some vague epigastric discomfort. No history of syphilis was obtained. No pre-marital or extra-marital sexual risk was admitted. Full clinical investigation revealed no evidence of syphilis. Repeated serological investigations returned each time a strongly positive Kahn and negative S.S. result. The Wassermann reaction was tested twice and on each occasion returned as negative.

Conclusions

The addition of Seiler's serodiagnostic test for syphilis (S.S.) to the array of

methods for the serodiagnosis of syphilis seems to be a step forward to a more rapid and simple aid to the investigation of syphilis.

It is suggested that when the diagnosis of syphilis is supported only by repeated Kahn reactions (the testing of the Wassermann reaction not being easily available) this new test should be used as a controlling factor in the diagnosis.

Whenever disagreement occurs between these tests, repeated serological investigations should be made at different laboratories.

Seiler's S.S. test for syphilis will correspond with the Wassermann reaction to within 1 per cent.

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CLINICAL RECORDS

SUBCUTANEOUS FIBROID SYPHILOMATA

This condition, which is one of the rare manifestations of late syphilis, is characterized by the presence of firm nodules in the subcutaneous tissue. These nodules are often multiple, usually occur in the neighbourhood of the larger joints (namely, elbow, knee and ankle) and may be symmetrical in distribution; juxta-articular nodule is consequently a customary synonym. They are firm in consistency, are usually painless and vary in size from that of a split pea to a hen's egg. The process of formation is a chronic one, with little tendency to become necrotic or to invade the overlying skin or associated structures, such as muscle, tendon-sheath or bone. In some cases trauma appears to precipitate their development, and this factor may explain their characteristic site round the larger joints which are daily subject to minor degrees of trauma. The nodules develop between three and twenty-five years after an initial infection which has remained untreated, but tend to be a late manifestation often associated with other signs of tertiary syphilis. The serological tests for syphilis show strongly positive results. In general, the histological picture shows masses of necrosis and occasional giant cells may be seen; typical tubercles are absent. The correct clinical diagnosis is seldom made until either biopsy or a positive report after routine blood tests has aroused suspicion of the true aetiology. Treatment usually leads to the disappearance of the nodules, the rate of response depending upon the density of the fibrosis, which in turn is governed by the duration of the gummatous process.

Case report

A soldier aged 43 years was admitted to hospital with traumatic synovitis of the left knee joint and was transferred to our care on 25th April 1944. He had been married for 21 years and had three living children, aged 15, 12 and 6 years, respectively. His wife had had two miscarriages some 15 and 12 years previously. In 1927 he had sustained an injury to the left elbow. Any history of venereal disease or its treatment was denied. Routine Wassermann and Kahn tests, however, were both reported as giving strongly positive results.

Clinical examination did not reveal any abnormality in the cardiovascular system, central nervous system, lungs, abdomen, skin or mucous membranes. Abnormal physical findings included a mild synovitis of the left knee and multiple firm painless subcutaneous nodules, unattached to skin or other structures, and situated in the lower half of the arm and upper third of the forearm on the extensor aspect of the left elbow. The patient was uncertain when these nodules had developed but he thought that it was soon after the injury to his elbow. X-ray examination showed some undue bowing of the upper third of the left ulna with irregularity of the olecranon process, probably due to a previous fracture. Radiography of the left knee and the cardio-aortic shadow did not reveal any abnormality. The positive blood Wassermann and Kahn tests were confirmed; cerebrospinal fluid examination was negative. Biopsy was performed on one of the nodules. The naked-eye appearance was that of a firm